



**THE
SUSTAINABILITY INSTITUTE**

Sustainable communities. One person at a time.



charleston wise

Impact Project

building the knowledge, awareness, and workforce
for the energy efficiency economy of charleston



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PROJECT OVERVIEW



- **Conduct community outreach** to educate residents on the value of energy efficiency in the home
- **Gather data** on the condition of our homes, best practices for efficiency improvements, and the real potential for energy savings
- **Grow the capacity of our workforce** to improve their knowledge, skills and abilities to work in the Charleston market

PROJECT OVERVIEW



Purpose – select 200 homes that represent a cross section of the Charleston community

Criteria

Geography

Square footage

Fuel types

Building Type

Household income

Occupancy

Age of home

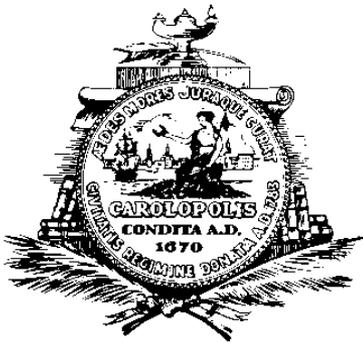


U.S. Census Data (American Home Survey 2005-2010)

PARTNERSHIPS



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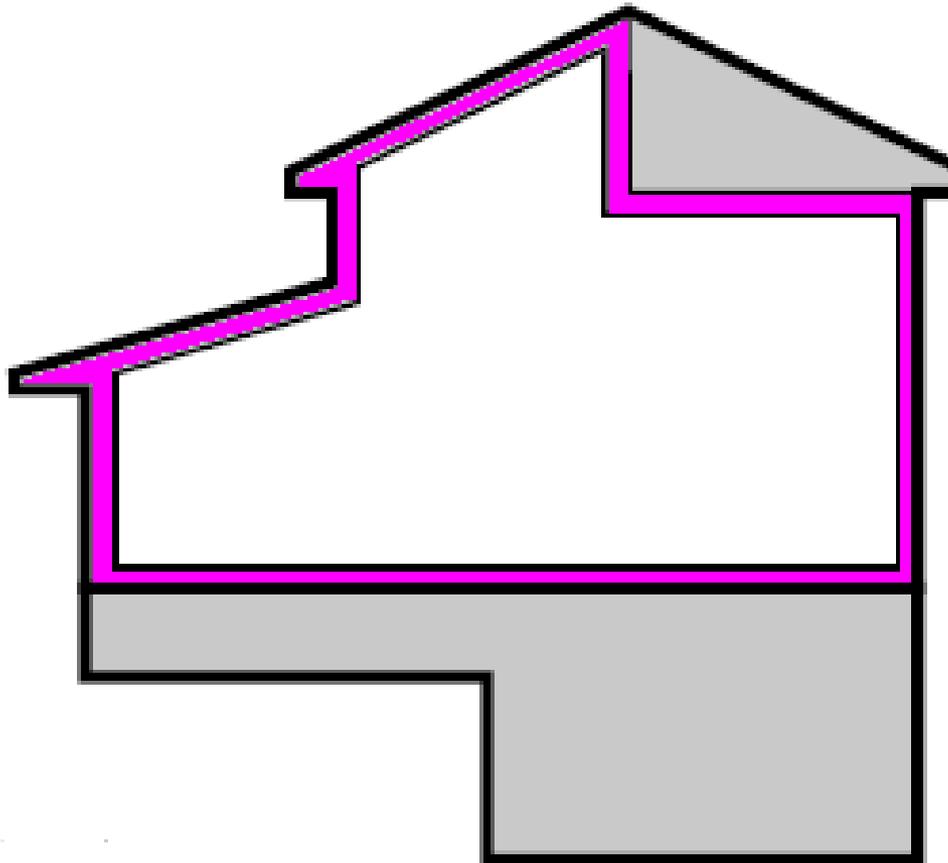
WORKFORCE TRAINING



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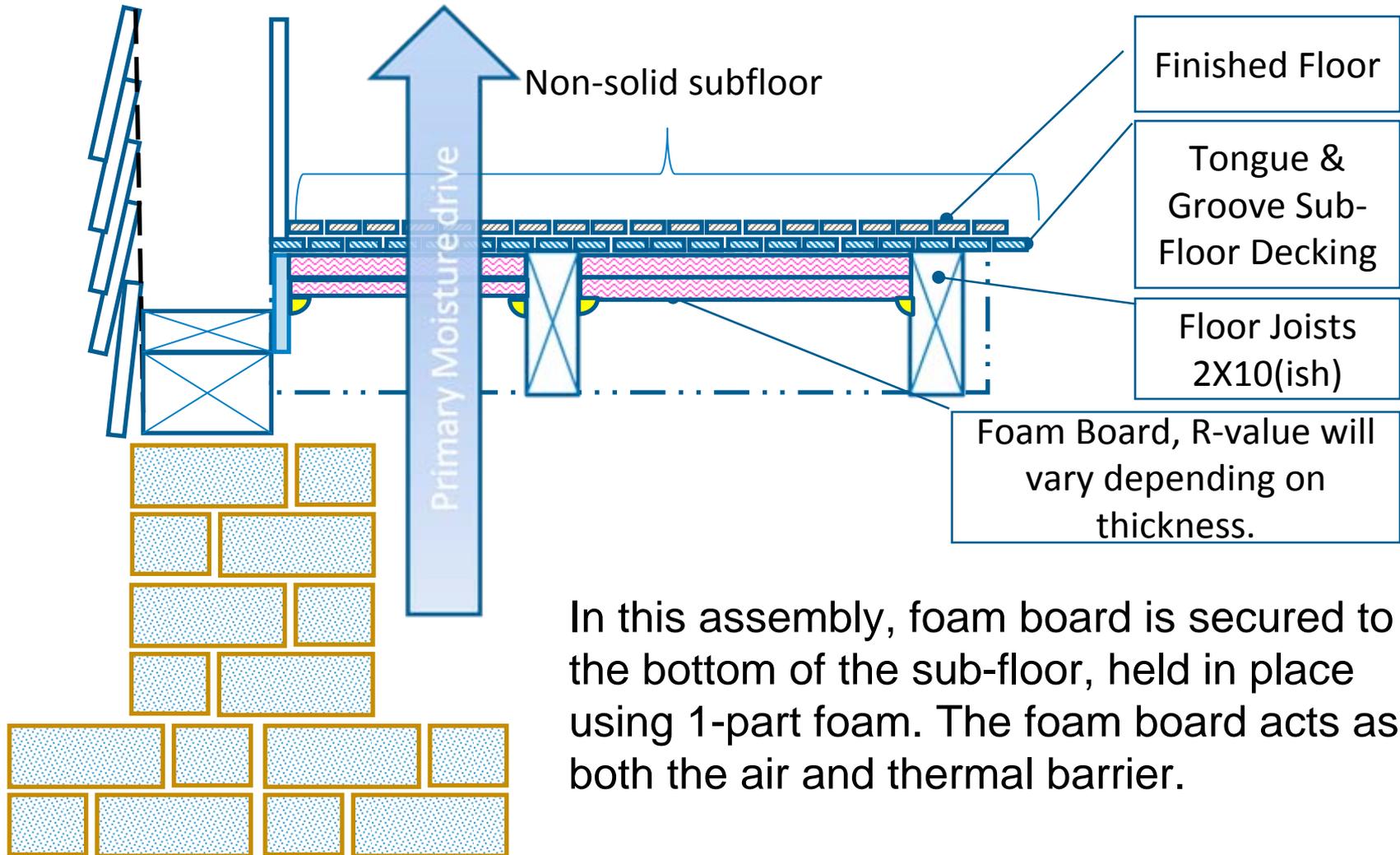
THE HOUSE AS A SYSTEM



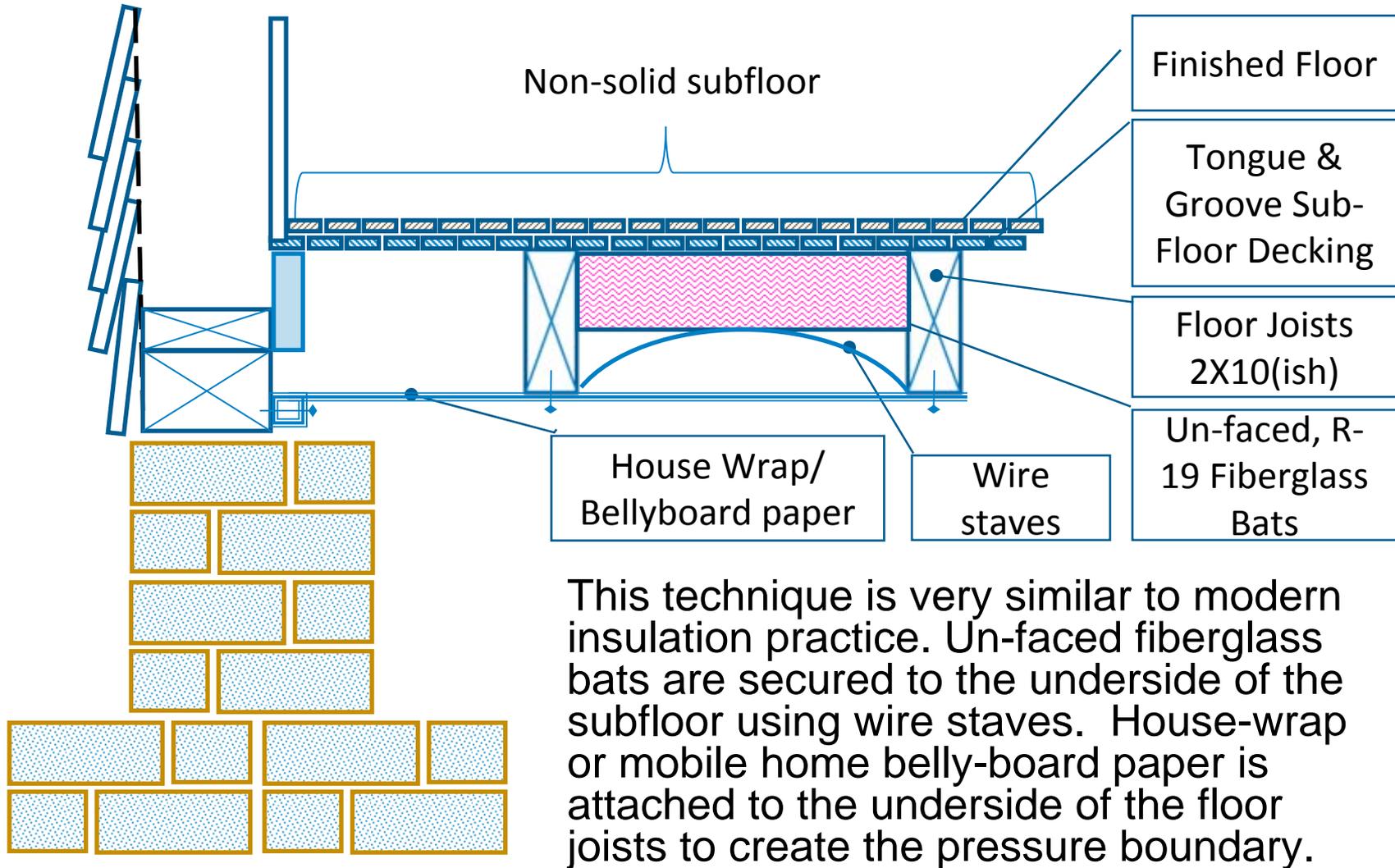
The **ENVELOPE** makes up the outer shell of the home: walls, ceilings, windows, floors, insulation, etc.



INSULATION CHOICES: FOAM BOARD



INSULATION CHOICES: FIBERGLASS BAT & HOUSE WRAP



INSULATION CHOICES: CLOSED CELL SPRAY FOAM



- Placing a removable barrier between the historic material and spray foam can create reversibility
- May make it difficult to inspect the original material and roofing structure

INSULATION CHOICES: CLOSED CELL SPRAY FOAM



- Insulate the band joist with bats so that the building fabric can be examined
- Maintain accessibility to the joist
- Will allow for inspection for water and insect damage



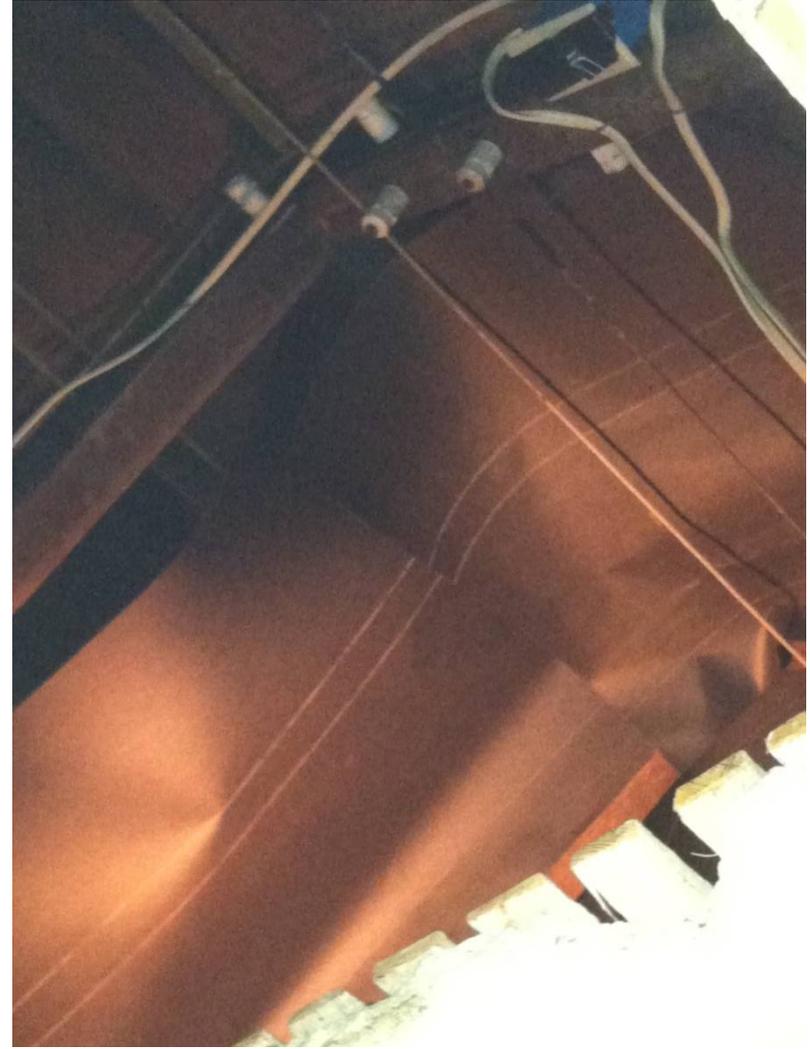
HISTORIC HOUSES FUNCTION DIFFERENTLY



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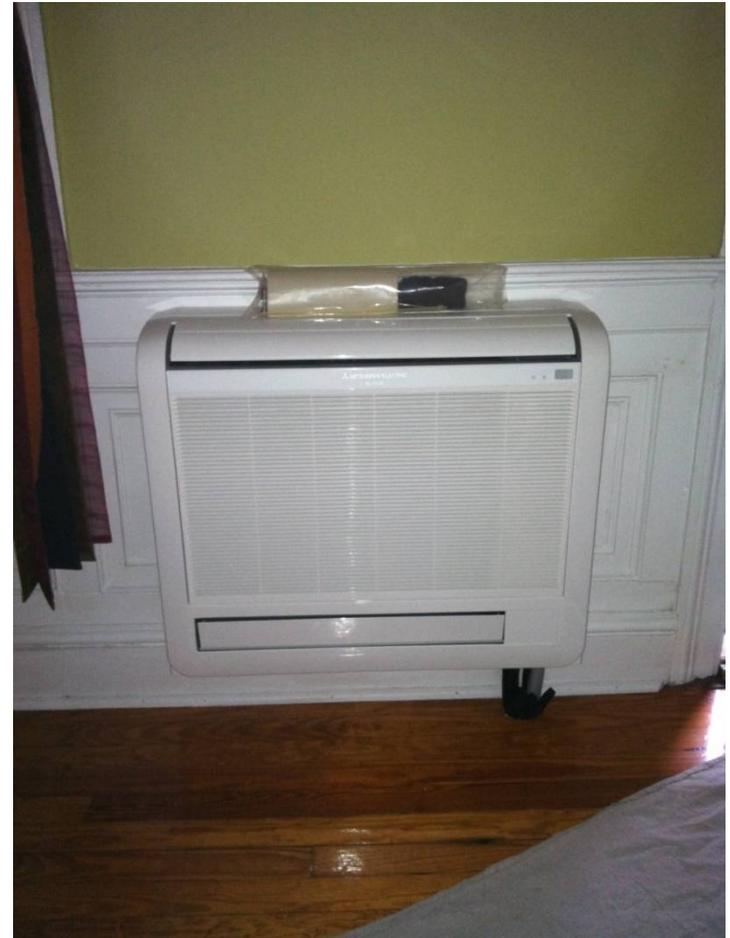
HISTORIC HOUSES FUNCTION DIFFERENTLY



BEFORE



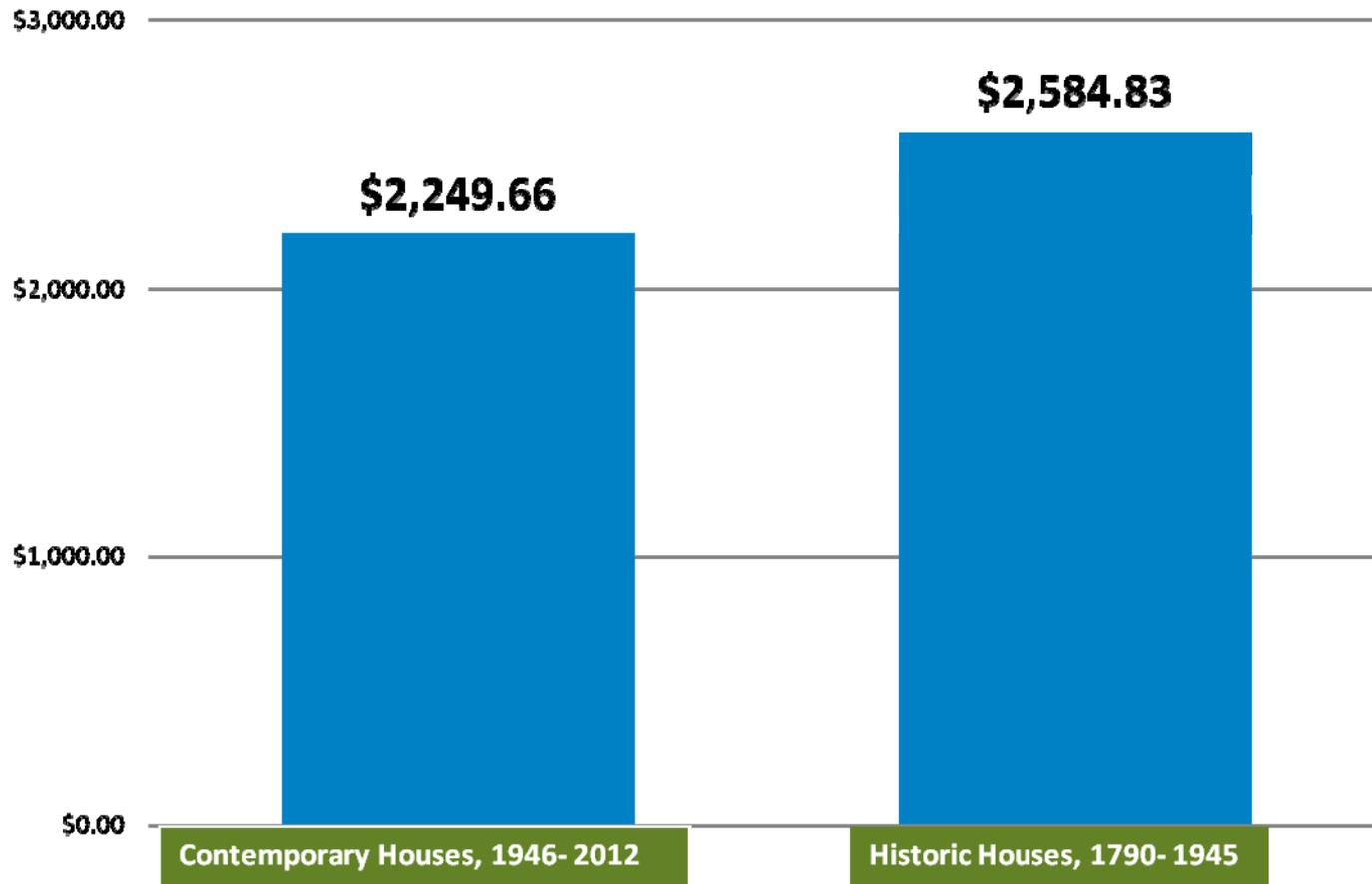
AFTER



CURRENT CONDITIONS OF CHARLESTON HOUSES



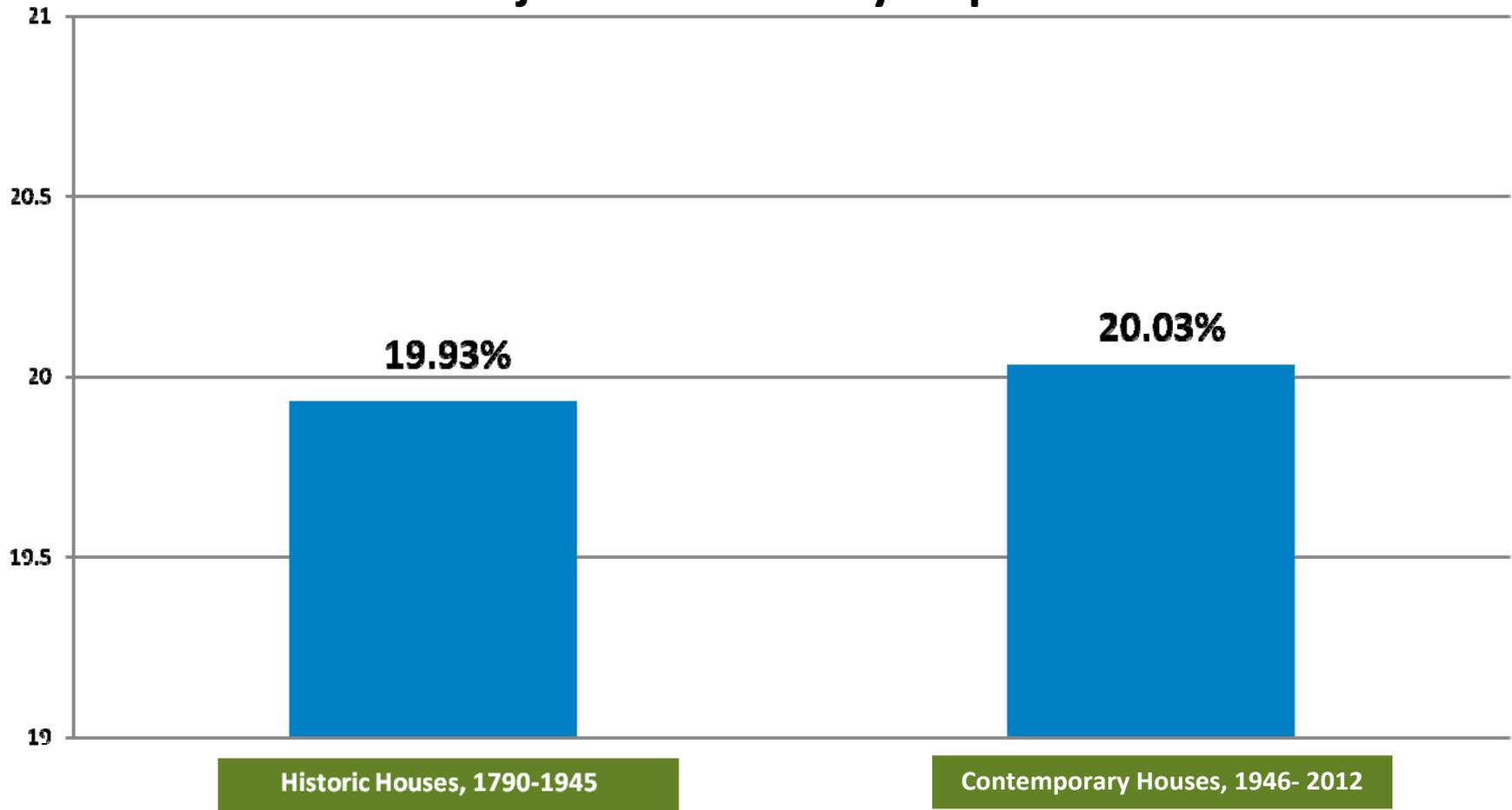
Actual Annual Energy Costs



CURRENT CONDITIONS OF CHARLESTON HOUSES



Projected Efficiency Improvement



RETROFITS OF HISTORIC HOUSES



- 4 Completed
 - 23.6% average projected cost savings
 - 35.5% average projected efficiency improvement
 - Focused on air sealing, duct sealing and insulation



COMPLETION OF THE IMPACT PROJECT



- 153 Energy Assessments Completed
- 17 Retrofits Completed
- Data collection- all participants will give their utility data one year after assessment or retrofit
- Findings will be published on the Sustainable Cities Institute website www.sustainablesititesinstitute.org
- Exploring ways to share or further teach *Energy Improvements for Historic Structures in Warm and Humid Climates*



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